Water Budget Status

ESHMC 30 June 2011

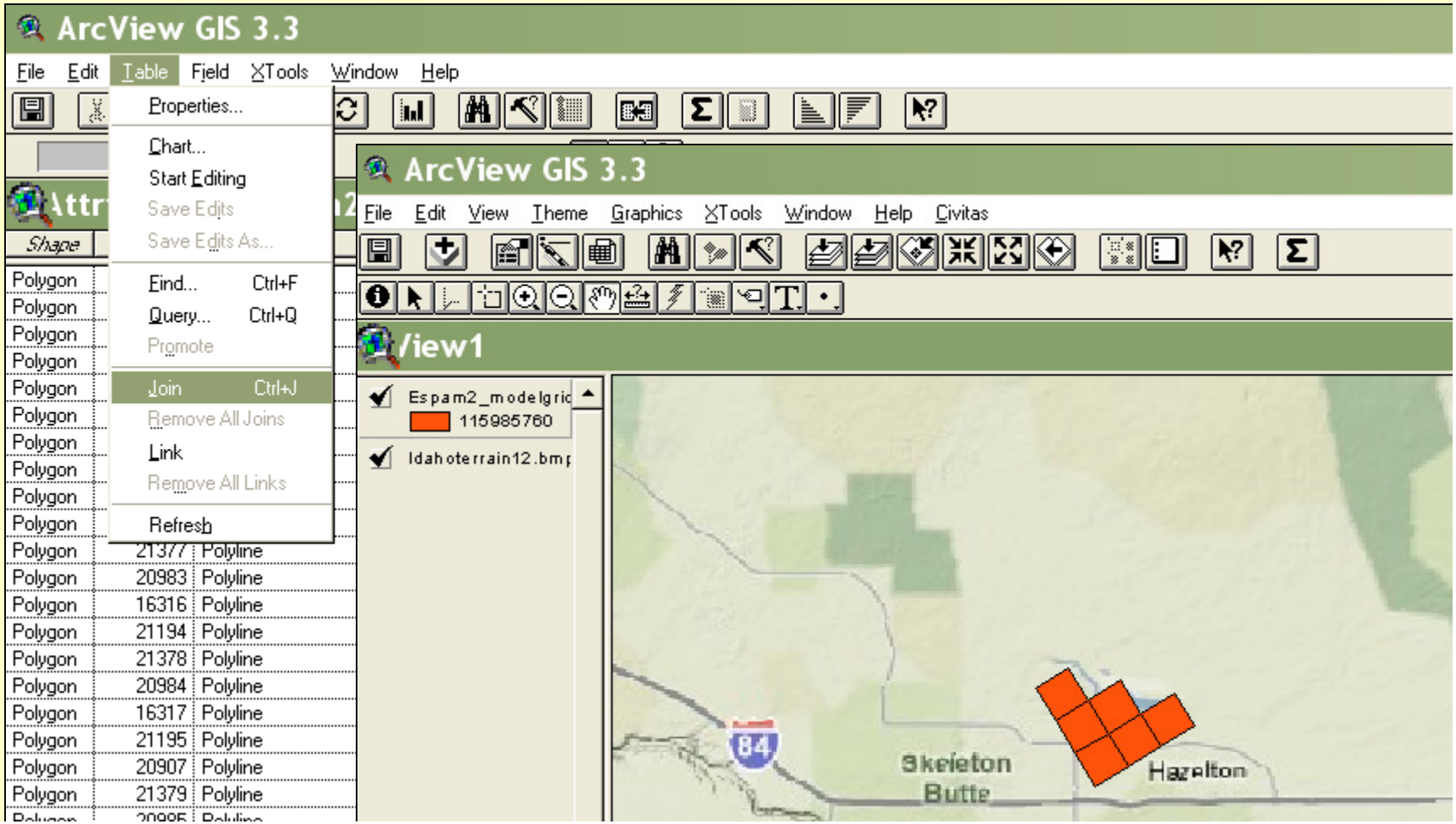
B. Contor

Outline

- Water Budget Components
- Tables & Figures
- Irrigated Lands Changes

Water Budget Components (jump live to Web)

Tables and Figures



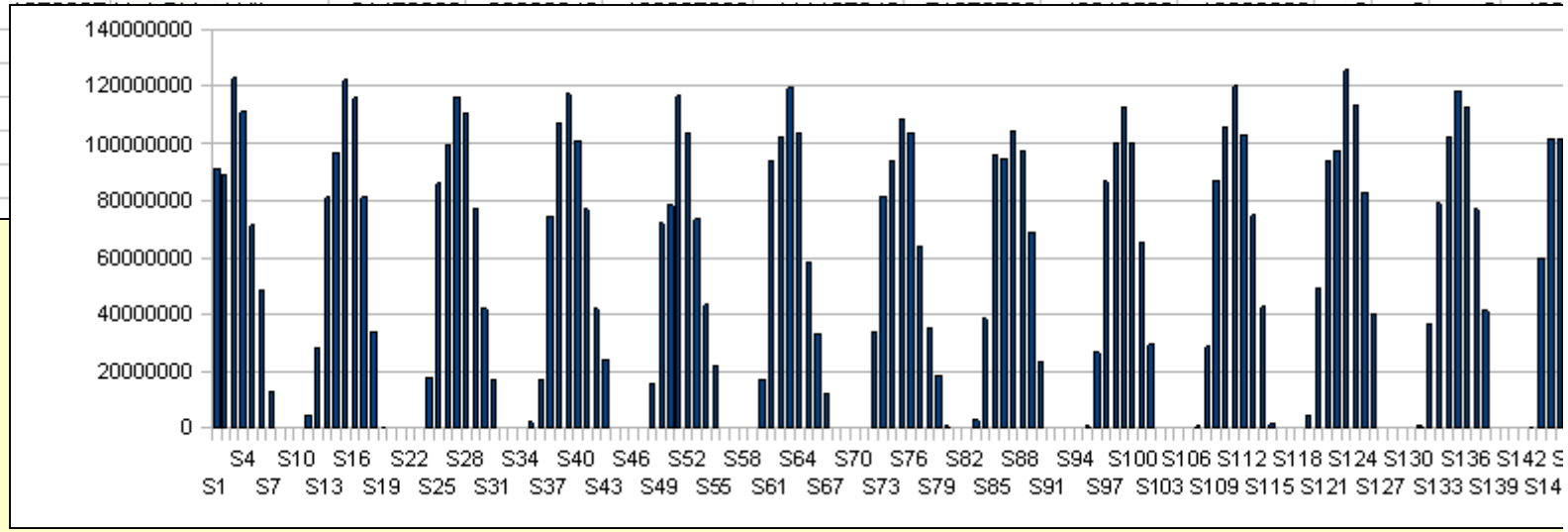
JS_TEST_AB_MULT_2_III_NrthSide_Wilson.txt - OpenOffice.org Calc

File Edit View Insert Format Tools Data Window Help

Arial 10

A1 Row

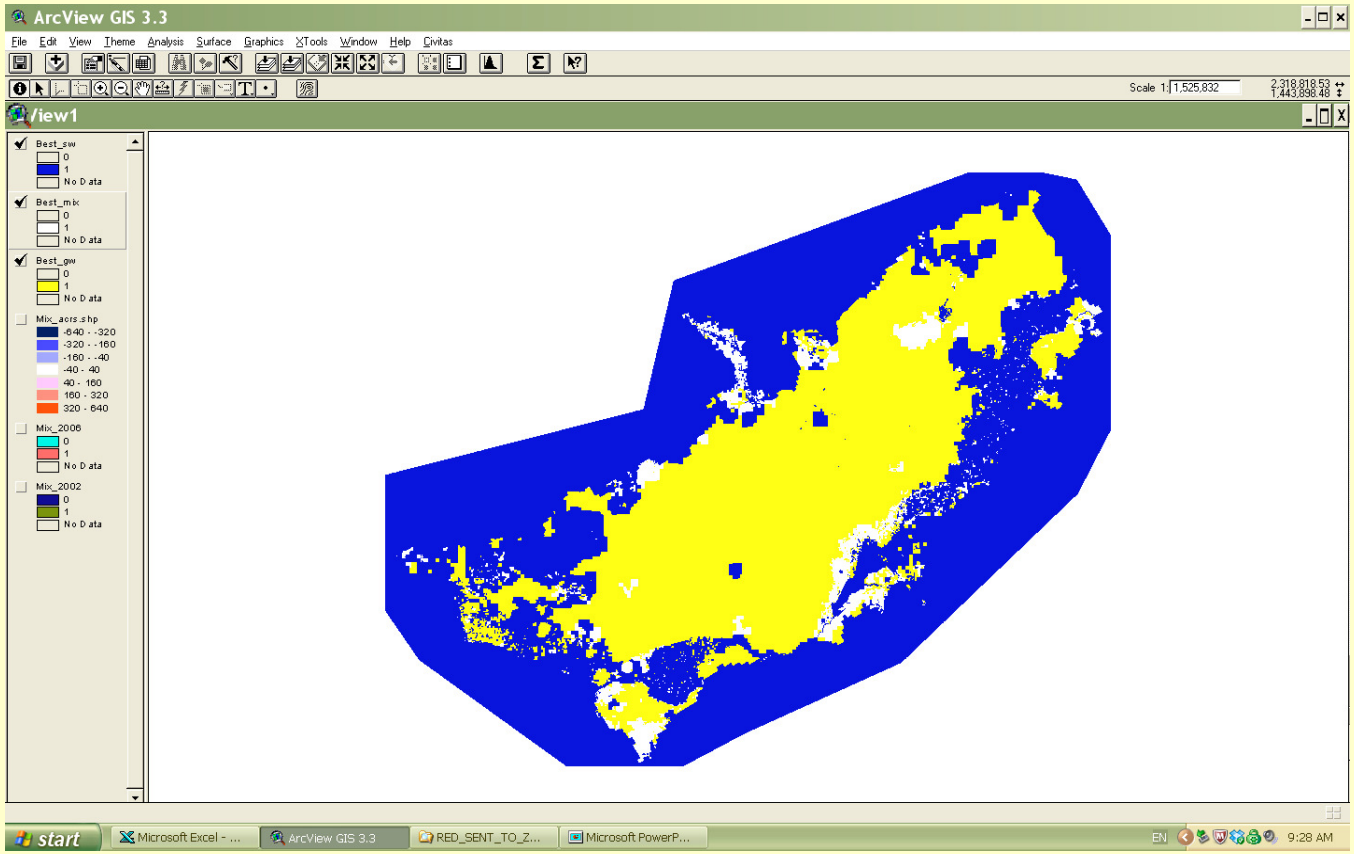
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Row	Col	CellINTGR	Feature	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11
2	71	37	1071037	NrthSide_Wilson	91476000	89036640	122897280	111107040	71670720	49019520	13300320	0	0	0	499
3	71	38	1071038	NrthSide_Wilson	91476000	89036640	122897280	111107040	71670720	49019520	13300320	0	0	0	499
4	70	37													
5	71	39													
6	70	38													
7	69	37													
8															
9															
10															



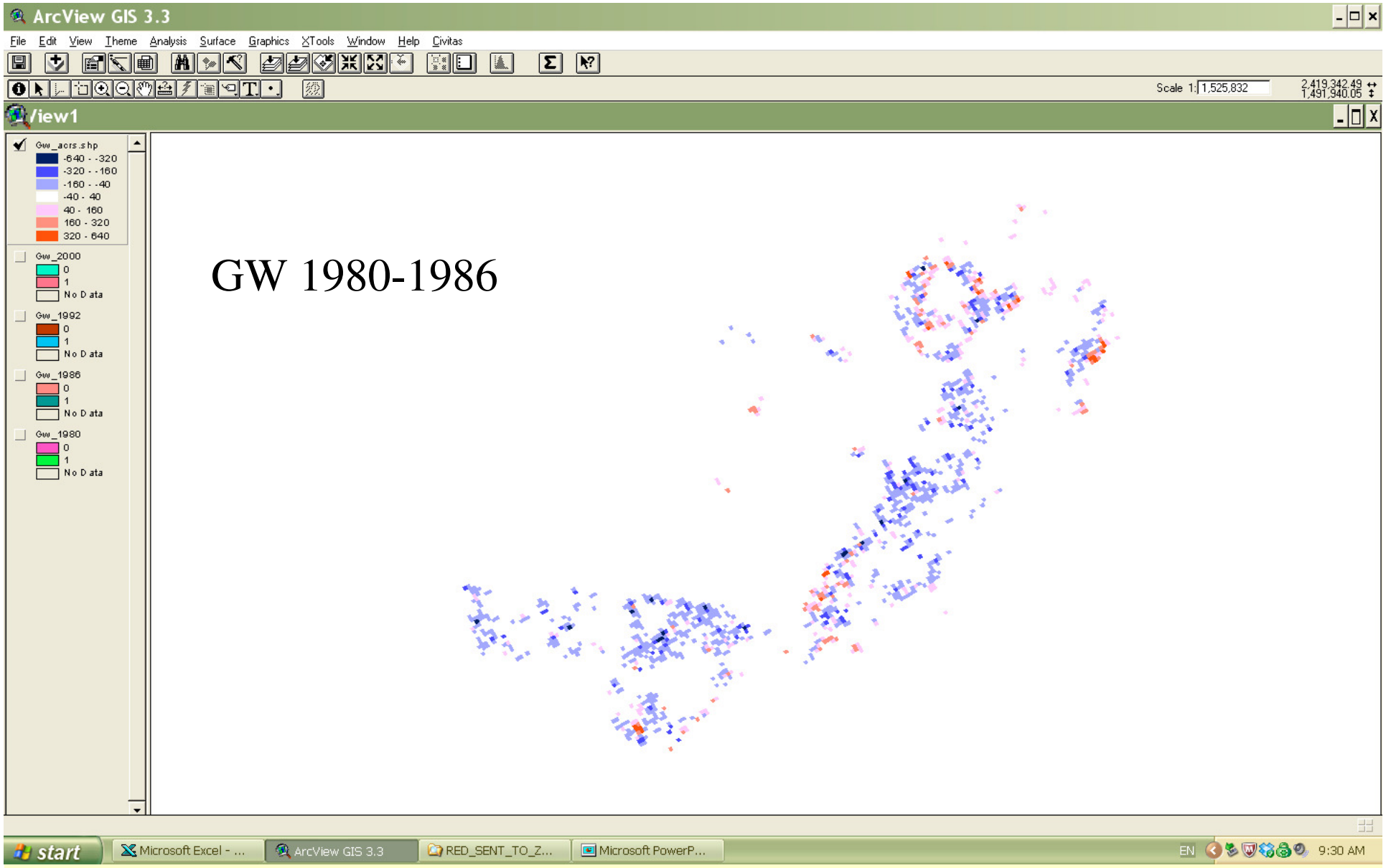
Changes in Irrigated Acreage

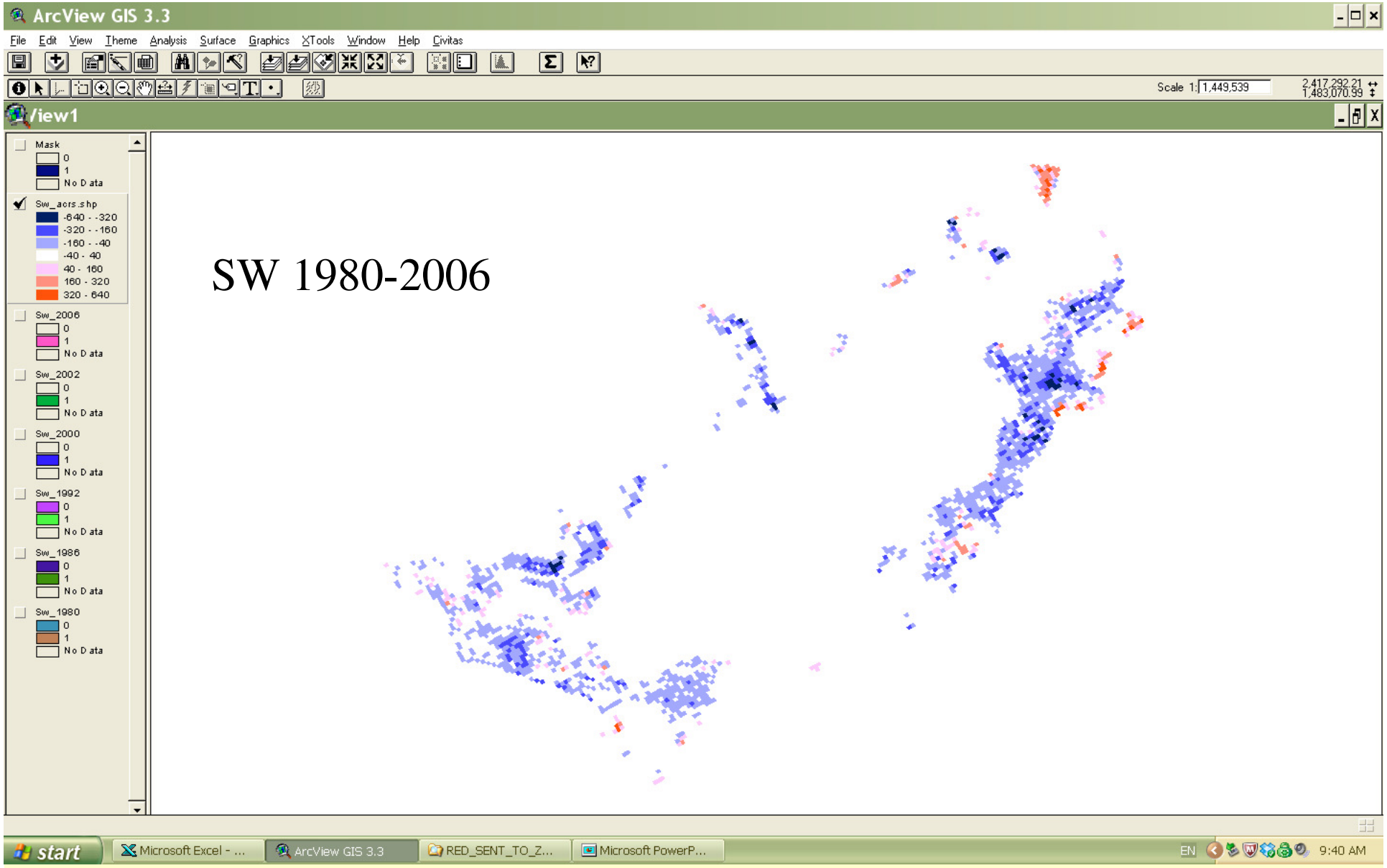
- Last time there was some discussion about whether year-to-year changes made sense
- IDWR asked IWRRI to take another look

1) Map year-to-year changes in acreage, by water source

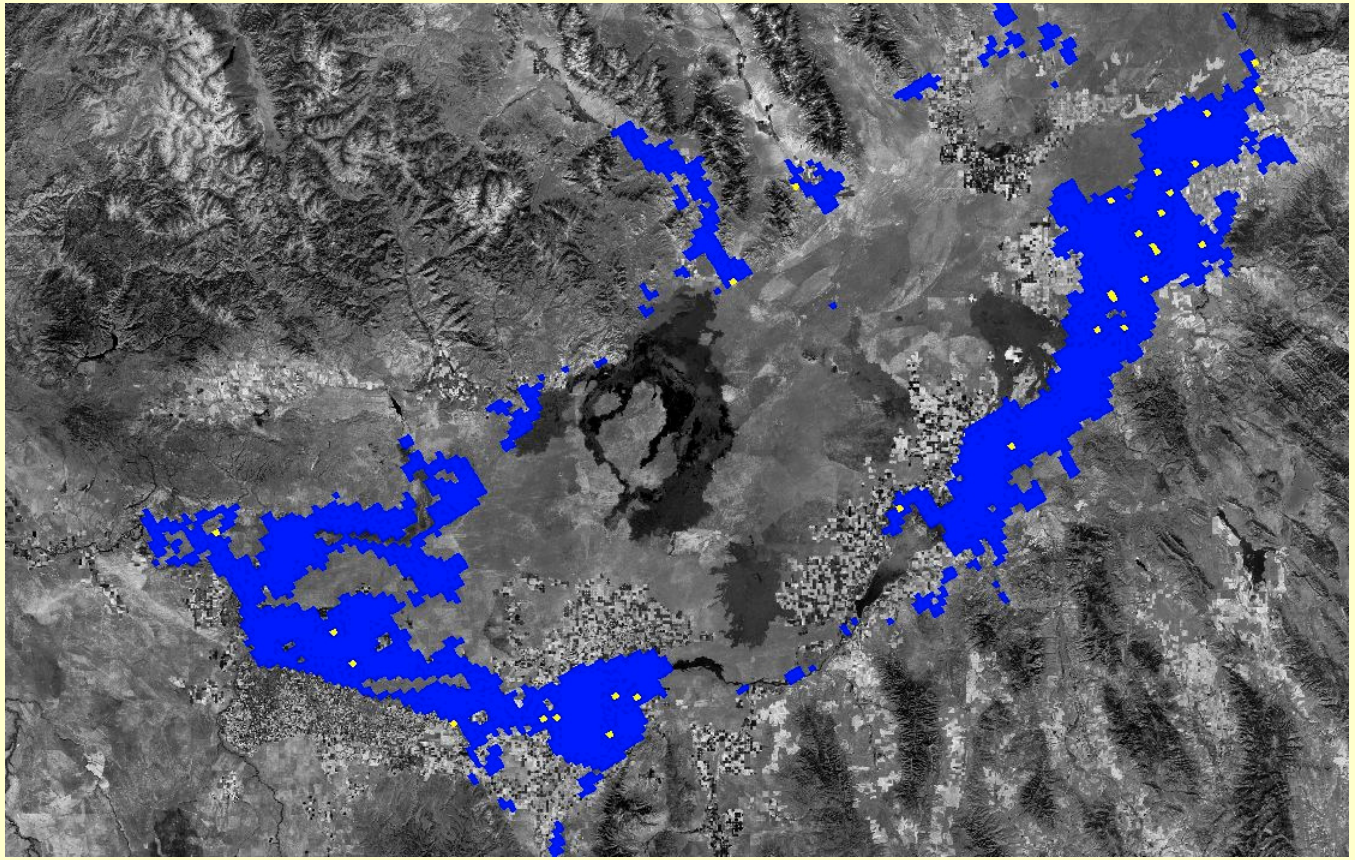


Blue = SW
White = Mix
Yellow = GW
(Best estimate of actual; not model)

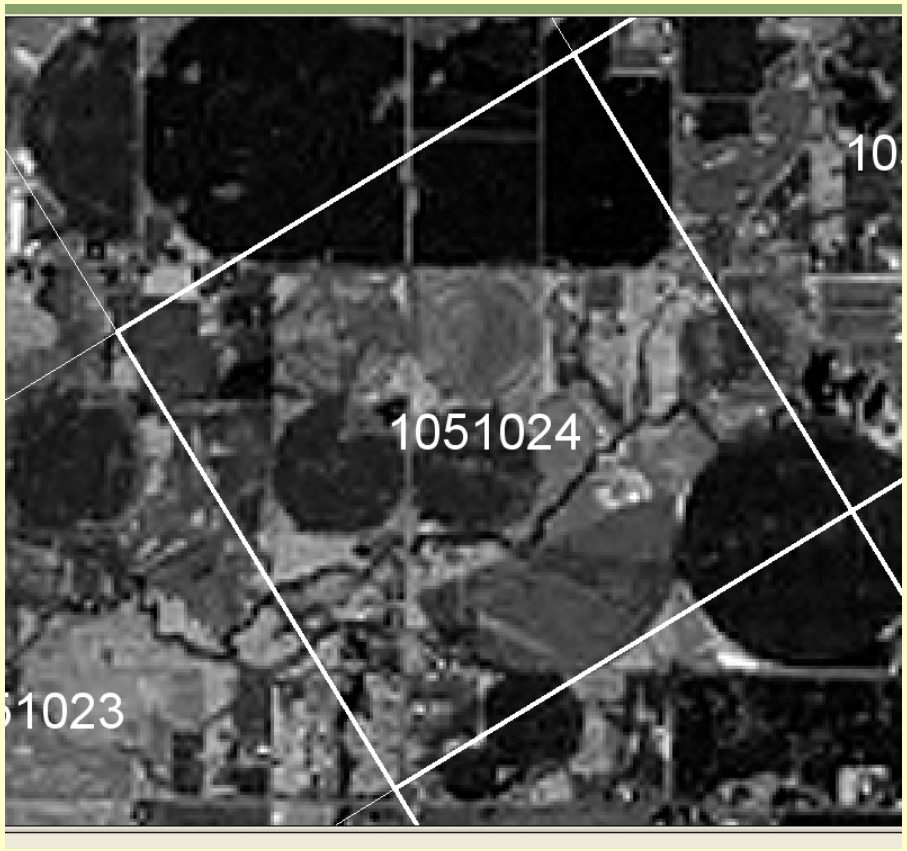

ArcView GIS 3.3
File Edit View Theme Analysis Surface Graphics XTools Window Help Civitas
Scale 1:1,525,832
2,419,342.49
1,491,940.05
/iew1
Gw_acrs.shp
-640 - -320
-320 - -160
-160 - -40
-40 - 40
40 - 160
160 - 320
320 - 640
Gw_2000
0
1
No Data
Gw_1992
0
1
No Data
Gw_1986
0
1
No Data
Gw_1980
0
1
No Data
GW 1980-1986
start
Microsoft Excel - ...
ArcView GIS 3.3
RED_SENT_TO_Z...
Microsoft PowerP...
EN
9:30 AM

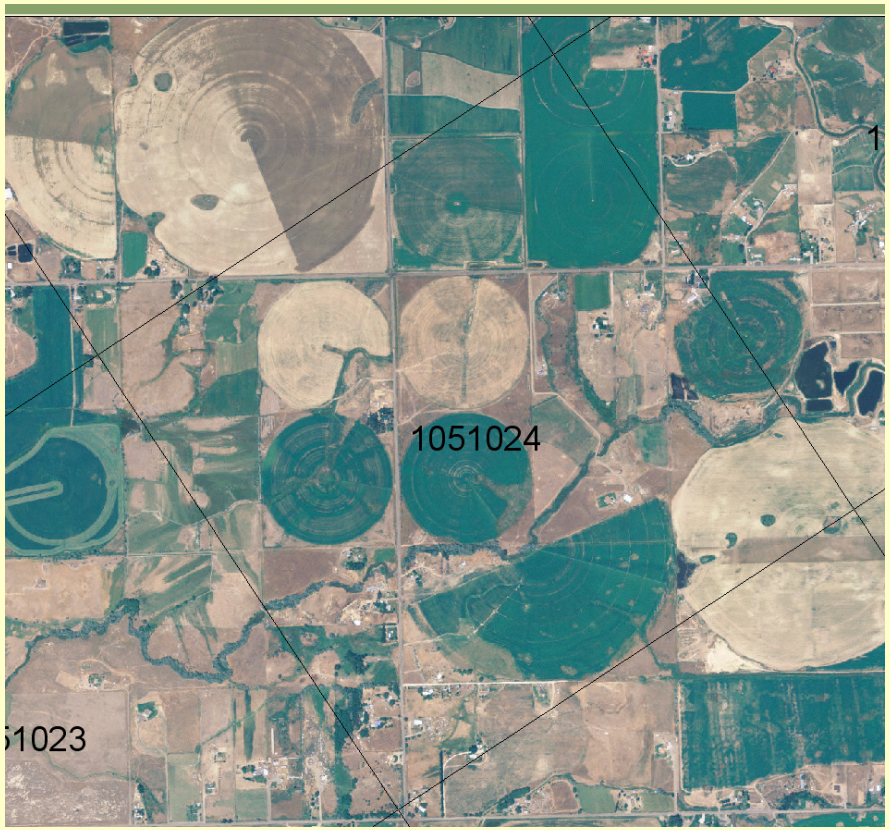

ArcView GIS 3.3
File Edit View Theme Analysis Surface Graphics XTools Window Help Civitas
Scale 1:1,449,539
2,417,292.21
1,483,070.99
View1
Mask
0
1
No Data
Sw_acrs.shp
-640 - -320
-320 - -160
-160 - -40
-40 - 40
40 - 160
160 - 320
320 - 640
Sw_2006
Sw_2002
Sw_2000
Sw_1992
Sw_1986
Sw_1980
SW 1980-2006
start
Microsoft Excel - ...
ArcView GIS 3.3
RED_SENT_TO_Z...
Microsoft PowerP...
EN
9:40 AM

2) Generate random sample

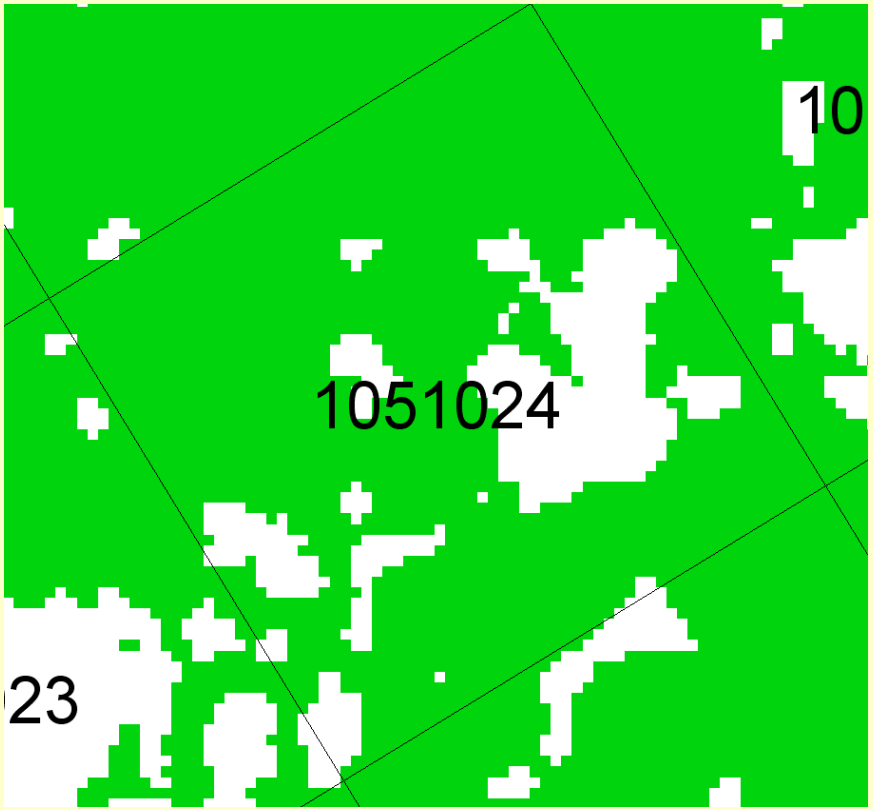


3) Obtain year-2000 and year-2004 images (no 2002 avail).

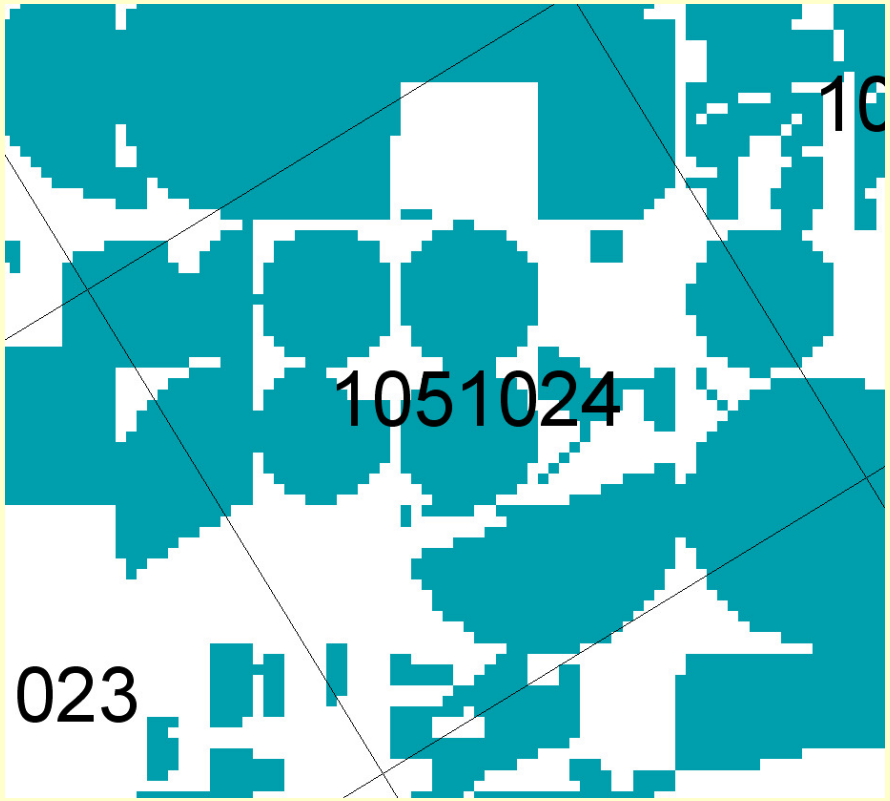




4) Compare 2000 and 2002 rasters on SW-irrigated parcels



2000



5) Attribute Cause of Difference

- Non-irrigated inclusions
- Change in Land Use/Land Cover
- Change in irrigation status
- Difference in wetlands & urban exclusions

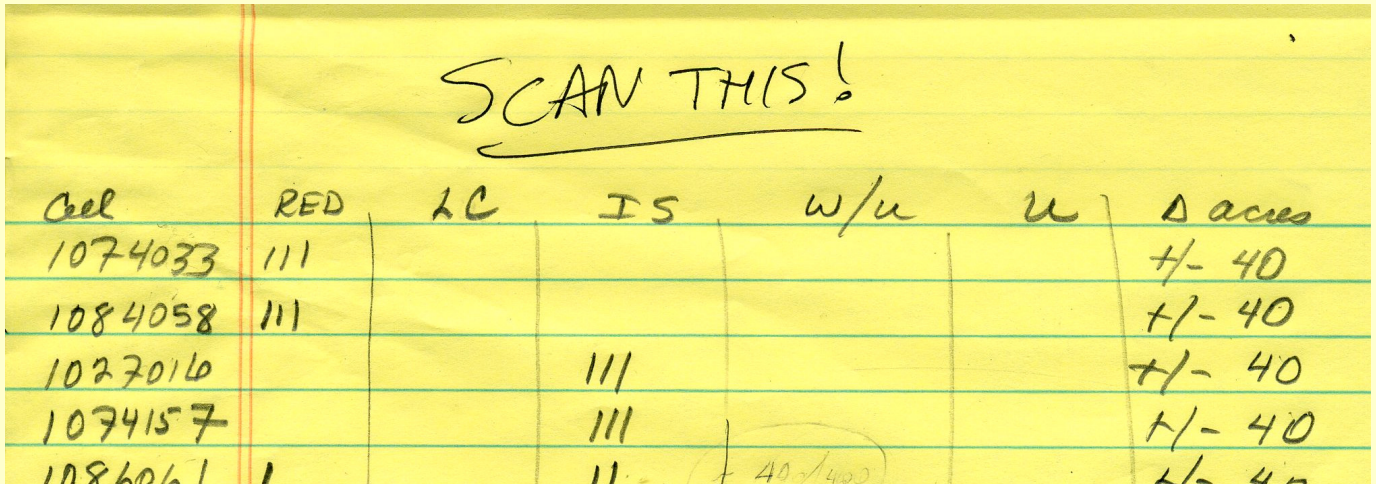


Table 4
Summary of results -
percentage of differences attributed to
various factors

Data Set	Non-irrigated inclusions	Land use/land cover	Irrigation status	Wetland/ urban
Ten random cells, no acreage restriction	67%		30%	
20 random cells, difference > 80 acres	12%	12%	56%	20%
Ten random cells, difference > 160 acres	3%		17%	80%

Table 4
Summary of results -
percentage of differences attributed to
various factors

Data Set	Non-irrigated inclusions	Land use/land cover	Irrigation status	Wetland/ urban
Ten random cells, no acreage restriction	67%		30%	
20 random cells, difference > 80 acres	12%	12%	56%	20%
Ten random cells, difference > 160 acres	3%		17%	80%

Conclusions

- Many of the differences make sense
  - changes in field geometry
  - changes in irrigation status

Conclusions

- The 2002 data set appears to exclude wetlands/urban areas that were not masked in the 2000 data set
  - 2006 is probably similar to 2002 (same methods & data types)
  - 1980-1992 is probably similar to 2000 (same wetlands/urban mask)

Conclusions

- It is reasonable that both effects would show up most in SW lands
  - SW lands nearer towns & wetlands
  - SW lands nearer areas of development & change
  - SW lands more likely to have been converted to sprinkler (by 2000 GW was already converted)

Recommendations

- ESPAM2.0
  - Difference is too small to justify ESPAM2 adjustment (6% difference & some of this appears to be real)

Recommendations

- ESPAM.next
  - New urban mask
  - Move from traditional to METRIC ET?
  - Keep traditional ET?
    - New wetlands mask
    - New RED with larger sample sizes
    - Use CLU polygons instead of hand-drawn for all parcels?
      - note this may bias towards sprinklers in earlier data sets

Great Feeder headgate. These are undershot clamshell gates. All are closed but one.